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SCHOOL AND SOCIETY

EDITED BY J. McKEEN CATTELL

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PHILOSOPHY AND RESEARCH*

THE RELATIONS OF PHILOSOPHY AND SCIENCE IN THE STUDY OF EDUCATION

By Professor WILLIAM H. KILPATRICK

TEACHERS COLLEGE, COLUMBIA UNIVERSITY

THIS topic of the relations of philosophy and science in the study of education I shall discuss according to the wishes of the program committee, as nearly as I can judge them, addressing my remarks to the actual situation confronting in American education. Since the topic was assigned to me I shall understand the term philosophy in the sense that I myself use and teach it in its bearing on education. Science I shall understand in what I take to be its currently accepted sense as the effort to apply the methods of "exact science" to the study of education. It need hardly be said that there are other definitions of both philosophy and science. For myself, I prefer a broader definition of science than merely the processes of exact science, but I am counting that it is "a condition and not a theory" which confronts. We are to consider the actual situation of greater or less conflict between these two approaches in the study of education. I shall maintain that there is no proper conflict between the two, and that any existing conflict results either from a misconception of the function of one or both or from an unwarranted extension of conclusions beyond the conditions on which the conclusions were reached.

Let us first try to clear up the different provinces of "philosophy" and "science" as defined above.

It appears that the methods of exact science have arisen by refinement out of the methods of common sense, and that in this development physics, for obvious reasons, led the way. To see the original against which the refinement is to be contrasted let us imagine the case of an old farmer who has lately installed in his home his first water system. The work was badly done and a cold spell has frozen a pipe. The farmer wishes to thaw it out but hesitates, asking, "If I pour hot water on it, what will happen?" His wife urges caution. They discuss their past experience of vessels that have burst in connection with freezing and thawing.

What now this farmer asks and answers at best haphazardly—"If I do this, what will happen?"—a scientific procedure would undertake more carefully with all the known precautions in order to obtain

* Papers read at a symposium before the American Educational Research Association, Cleveland.

as reliable resulting knowledge as possible. In general we may say that science relies fundamentally upon hypothesis and testing. It will use the principles of the separation of variables and of control group procedures. In particular it will work with all possible care, and will especially seek to prevent any personal bias from entering as a factor in the determination of the outcome.

Science is thus the most careful possible way of finding and stating how a given quantity varies under named conditions. "If I do this, what will happen?" may be taken as a popular way of stating the problem which science undertakes most carefully to answer.

In analogous fashion philosophy too may be said to have originated by refinement out of a common-sense type of problem. For illustration let us go back to the farmer and his wife as they were beforehand considering whether or not to instal the water system. The alternative was to allow their daughter to go to college. Available funds did not suffice for both. A choice had apparently to be made. We can hear the old fellow say: "We *need* the water works. Mary don't need to go to college. It's only she's set her mind on it." "If she goes to college, she'll want to go off somewhere else to live. I want to see her married and settled close by. In another year I hope she'll marry Jeff Smith and be settled for life." "Yes, and if she goes to college I'm afraid she'll lose her religion, the same as Trudy van Landingham did, a-saying the Bible is wrong in spots. To my way of thinking Mary's safer at home."

Again we have common-sense with its easy-to-hand answers as opposed to the possibility of a more carefully considered weighing of what is involved. Some of the matters involved in this instance readily present themselves.

What does "need" mean? When is a thing needed? It is such questions as these which arise if we look more closely into the character of the desirable life than the farmer seemed inclined to do. Water in the home and the development of life's possibilities for Mary seem fairly disparate, difficult of comparison, but they must somehow be weighed against each other if the farmer and his wife are to decide more adequately the question as to what they shall do.

There is further involved the relations of the different persons to each other. Are the parents the ones to decide whether Mary shall "marry Jeff Smith" and "settle down"? Kant's problem seems here involved as to whether Mary is to be used as means or as end. In this again is involved life in its deepest sense and meaning. Still further we have the question of authority in religion and still again whether parents have the right to settle such matters for their children. The old farmer was ready to count all these questions settled. Others of us think them worthy of far more consideration.

All such questions as those raised just above seem to concern life as such, life as consummation, life as an intermingled aggregate of values which do in fact affect each other in much the same way as do the parts that make up a whole. Analysis will help to study the problem, but no separate study of the values involved will as a rule suffice. The solution seems to lie along the line of integrating all the factors into a whole, into one course of procedure that shall somehow best save and serve as far as possible all the values. And this still holds true in spite of the fact that values and factors taken analytically often seem disparate, even radically incommensurable, with respect to each other.

Philosophy, or better, philosophizing, is thus conceived as "an unusually stubborn effort" to settle such problems as the foregoing with as full consideration as possible of what is involved. It is the problem of

determining what to do in a specific case in the light of all the warring values involved.

To make clearer the contrast between science and philosophy as these are here thus defined and illustrated it may be well to consider more fully certain contrasting elements involved.

1. As to type of problem. Science is concerned with facts. Its effort is to find and establish uniformities. Following its typical method it isolates each instance of such and then undertakes to find and state the relations which hold between varying conditions of the matter under consideration and the respective corresponding results. Its question (in substance) is, "If I do this, what will happen? Or perhaps better, "when these conditions hold, what follows?" If no answer to the question is forthcoming, science must say so and wait. As to what use will be made of the facts so determined, that is for others to say.

Philosophy in contrast faces a situation of necessary action. It says, "The case is doubtful. There is apparent conflict of values. Any course seems likely to bring both good and evil. What shall I do?" Note that any such situation confronting is actual and must be met, and that any choice or course whatever, including refusal to act, is *an* answer which carries with it its appropriate harvest of consequences. Philosophy then asks, "In the light of all this what shall I do?"

2. As to type of consequence considered. As implied above, exact science seeks to isolate each variable involved, subject it to assigned varying treatments and ascertain the corresponding changes that ensue as the treatment is changed. To the scientist, for the matter at hand, no value attaches to one change over another. That a certain diagnosis foretells death to the patient can in no wise enter into the determination of the diagnosis. It is the excellence of scientific method that these consequences are rigidly excluded.

For philosophy, on the other hand, consequences of value and import are integral in its purview. It is just the consequences that follow because people see and feel that most of all constitute the data which concern philosophy.

Science concerns itself with results that follow in terms of "causation." Philosophy must know and use these, but its final concern is with consequences that follow because these things have *meanings* for the people variously concerned.

3. As to bias or wish or interest.[1] Science, in the degree that it can effect it, must eliminate all bias or wish or interest in one specific result over another, at least so far as allowing such bias to affect the result. Philosophy, on the other hand, must deal exactly and precisely with interest, wish and preference. These constitute its primary subject-matter. All such, both immediate and remote, must be brought out into the open and there weighed, related, considered, each in its varied bearings, all to the end not of eliminating preference or preventing it from affecting the result but precisely to give to each such preference as far as possible its own sway and to grant to it its greatest possible part in determining the result. Greatest possible part, that is, in relation to all the other preferences or interests or values involved. The effort is, as far as may be possible, to find a course of action which will save all the interests, which will integrate all into one course of action that best saves all.

4. As to dealing with parts or with whole. Science (in the degree that it is "exact") proceeds by analysis and the separation of variables. It abstracts part

[1] Here I wish to acknowledge my indebtedness to my colleague, Professor R. B. Raup. For a fuller discussion of this point see his article, "Limitations of the Scientific Method," in the *Teachers College Record*, 30: 212–26, December, 1928. It is worthy of remark that Dr. Raup chose to conduct his discussion without using the term philosophy. I believe, however, that I am here doing no injustice to his position.

from a total setting and seeks to find relations thus existing in this condition of abstractedness. Thus in any statistical treatment of people, as, for example, in life insurance discussions, the age may be the sole factor considered. For such purposes all men forty years old are exactly alike, precisely interchangeable, each one exactly and identically equal to each other one. Clearly this treatment involves a high degree of abstractedness.

Philosophy, on the contrary, must deal with "whole" situations, that is, with the parts as they are actually related and conflicting in the existing total situation. It will analyze but must always reach its conclusion only after the abstracted element has been put back into the actual total working relationship along with all the other elements that are in fact involved. It is hardly possible to overstress this difference of procedure between "philosophy" and "exact science" in its treatment of the part-whole relationship.

5. As to the time element involved.[2] Science deals with things that are at hand here and now. On no other basis can it measure or weight or count. Philosophy in addition to things that are now in existence must deal also with what is not yet in existence but might or could be and perhaps should be. It must somehow weigh such as these against each other and in the end decide that what now is not shall come to be.

It is probably wise before taking up the more controversial matters to consider next some of the interrelations between "science" and "philosophy," how the two more or less overlap and interact.

(1) Both science and philosophy (as herein defined) use the procedure of hypothesis and testing. Both appeal equally to the facts of experience as the final test of the validity of an hypothesis. The testing is likely to be different. It is also true that "science" may at times refuse to decide; it can wait. Philosophy, however, can not wait. To decide to wait constitutes both for life and for philosophy an answer. But having answered, philosophy awaits the outcome to test the validity of its answer as truly as does science.

(2) Philosophy must respect facts as definitely as does science. And it will properly get its facts from science. Many so-called facts, however, are so suffused with interpretation as to be questionable from the point of view of other interpretation. Philosophy stands peculiarly ready to re-question all such interpretation-facts.

(3) Scientific findings may affect "philosophy" by changing the data upon which its conclusions had hitherto been based. Such change of data may upset an old conclusion, or it may remove doubt at a certain point and so abolish an old problem, or it may create new problems.

It is probably in connection with this point that there has arisen the opinion, widely held in certain circles, that the advance of science, having thus at times cleared up doubt and so abolished old philosophic problems, will, given time enough, clear up all such problems and so, as it were, "push philosophy off the map." The contention—or hope—might be more tenable if we lived in a finite world, with nothing new happening in it. In such a world there may, for aught I know, be a finite number of problems with the possibility of solving at least some of them so that they would stay solved. So far as we can yet tell, however, our world is not finite, but has infinite possibilities for new problems. In fact, each significant advance of science, in general, adds more problems for philosophy than it subtracts, and besides makes many an old problem still more tangled. For instance, man in his philosophizing has not yet digested the

[2] For this point I am indebted to an unpublished lecture by Professor Dewey.

doctrine of evolution, and now comes the new physics with the promise of enough problems to keep us busy for generations to come. In a smaller way, the testing movement in education has added to the number of problems facing the philosophy of education. Testing has helped to solve some problems in education, but it has added more than it had settled.

As long as the world remains infinite and science will oblige us by continuing to grow, philosophy has no fears of running out of problems. To think of it is to laugh.

(4) "Philosophy" often, perhaps generally, gives to "science" its basic assumptions. This is to say nothing more than that the men of any time think the thoughts of that time. The trouble about it is, as another has said, that theories often continue to live after their brains have been knocked out. Old assumptions hang on after they should be discarded. One such hang-over probably lies back of the conflict we face here to-day. Medieval theology through its influence on Descartes (in spite of his wish to start afresh) gave to modern exact science its most hurtful assumption, the body-mind dualism. Physics, accepting the dualism and restricting itself to matter and motion, worked wonders. Thus arose the wide-spread tendency to restrict careful inquiry to the measurable aspects of life, with the more or less definite tendency to deny validity or worth to all else. We see some of the results of this dualism when one writer objects that another "has made up his windpipe that there is no mind." It is the same dualism but from the other side when a writer admits habit in lower responses but denies it a place in "the higher processes." Even Eddington in presenting the most astonishing and revolutionary about-face of modern physics can not stand outside his surrounding dualistic atmosphere as he tries to state the new position. In this particular case in spite of this limitation we get, however, in his words a breath from a new world:

> Recognizing that the physical world is entirely abstract and without "actuality" apart from its linkage to consciousness, we restore consciousness to its fundamental position instead of representing it as an essential complication occasionally found in the midst of inorganic nature at a late stage of evolutionary history.[3]

The body-mind dualism with its unwarranted emphasis on measuring is not the only hurtful assumption currently made in scientific circles. A fixed-in-advance universe is another. In an astonishing degree the less careful upholders of the subject-matter basis of education assume (apparently without knowing it) that the universe is fixed and change a negligible factor, thus helping to perpetuate certain concepts which were originally devised or at least promulgated in defense of feudalism and medieval religion. If change as an actual factor in our world were given its rightful place in educational thought, many current emphases in the discussion of learning would undergo great transformation. The need for the continual criticism of current thought assumptions in the light of their wider bearings would of itself, apart from all other considerations, suffice to give to philosophizing a permanent place among the higher services of thought to man. That such criticism is painful to all varieties of fundamentalists is only additional reason for demanding its continuance.

We now have before us the more significant distinctions in meaning and interrelations in fact between science and philosophy as upheld in this discussion. Let us next ask whether there are situations in education which especially demand the kind of treatment here reserved for philoso-

[3] A. S. Eddington, "The Nature of the Physical World," Macmillan, 1928, p. 332.

phy. It appears that there are such and that for their adequate treatment the methods of exact science will (so far as yet appears) be forever insufficient. To clarify ideas only clear-cut instances will be used, where significant values conflict and decisions must be made. It is freely admitted that such situations of doubt shade off by degrees into those too trivial or too familiar to present problems of interest in the field of our discussion.

Four such situations are here presented as peculiarly the province of philosophizing.

First, *wherever there is indecision or doubt or dispute regarding the "good life," that is, the life that we shall approve and seek.* This will manifest itself clearly in (*a*) the problem of the curriculum content. Shall these pupils study French? Science in some of its departments may supply valuable data to be considered in attempting the problem. The solution, however, is essentially that of budgeting French and the time and effort spent on it with other constituents and factors in life. Everything pertinent to the life of the pupils, actual or potential, is involved. Merely to study the effects of French could not suffice. The separation of variables and control group procedures are not sufficient where the *whole of life* is contemplated. If the question were whether a stenographer working under such and such conditions should give so many hours of preparation to learning French for use as a stenographer and the judgments were to be made in terms of contrasted money returns, then something could be said for an exact scientific determination of the problem as stated. But the curriculum problem is not a limited problem. It involves all of life for these pupils and for all whom they will influence. There is no claim that "philosophy" has a method or an answer adequate to the problem. The claim is that anything less than an actual facing of what is in fact involved and of all that is involved, such as philosophizing accepts as its task, is not even a reasonable attempt at solving the problem. One whose sole method is that of "exact science" is by that very fact shut out from even facing the curriculum problem as a whole.

And along with the curriculum problem (as a whole) go also (*b*) all method procedures in dispute. These for their final evaluation must be judged by their effect on character and life. On no other basis can we adequately compare or weigh contrasted method effects. It is increasingly recognized that the organism responds as a whole, which means that indefinitely many learning effects accompany any significant responding. Any proposed weighing of contrasted results must include and weigh all these and in their varied consequential effects. But such weighing as a whole is beyond the separate-analytic processes of exact science. Method accordingly is in any adequate sense beyond it.

With method of course goes (*c*) all valuation of teaching procedures. The analytic method can tell which procedure will best give, other things being equal, any precisely specified outcome; but this is no adequate evaluation of a procedure that, like method in general, entails an innumerable host of attendant learnings. So also in general (*d*) any administrative procedure that significantly affects learning outcomes can not be adequately evaluated by the analytic methods of exact science. In this is involved problems of class size, apportionment of supplies, the examination system, platoon school procedure, etc., etc. All such require that relating of part to whole which "exact" science by its very analytic processes is inadequate to deal with.

We thus conclude that curriculum, method, teaching and administrative pro-

cedures of all kinds in so far as they affect life and character present problems which, while admitting also countless "scientific" inquiries, will none the less forever require the outlook and effort herein called philosophic. And even if we could ever once get the problems solved they would not stay solved; for our world is a changing world and as such constantly introduces novelty in such way as to shift from time to time the factors in our problems and consequently to upset the solutions. Philosophizing is, as far as concerns these problems, forever and continuously inherent in the study of education.

A second situation which calls for philosophizing in education is to be found *wherever the school must make a choice among persons or in the relation of person to person.* The considerations here practically repeat the preceding. Shall we have separate vocational high schools or keep all secondary people together? Whatever may be the proper solution in any given case, it can not be reached without a consideration of life as a whole, as a whole in respect of each person involved and as a whole in respect of the total group life. For vocational segregation has its effect on life's outlooks. Similarly with segregation by ability. Similarly with any proposition to limit secondary education facilities to those of certain ability standards. So also with regard to any proposed use of the facts of individual differences. In all such, life and its outlooks are involved, so that philosophizing becomes involved. If any were disposed to doubt that philosophizing is involved it is only necessary to study history and see how the different philosophies (inclusive assumptions, inclusive points of view) have returned different answers as to how to treat individuals in all such regards.

A third and very far-reaching type of situation calling for philosophizing is *where a principle, or even fact, established in respect to abstracted data is sought to be applied in general.* The contention here made is that what is proved with abstracted data may or may not remain valid when applied in a total (non-abstracted) situation, and in education only a "philosophizing" attack can tell in general whether it is applicable. For instance, in mathematics the whole is equal to the sum of its parts and a whole may be constructed from the requisite parts. But in biology it is not true. The biologic whole is more than the sum of its parts. So also is an esthetic whole, and likewise a social whole. It may be that this third principle is but the generalization of the other two. An experimenter studies "motivation." (This term is, by the way, interesting as carrying with it the implicit assumption that subject-matter shall first be selected and then taught, an assumption which I for one more than question.) He concludes from his study that one type of "motivation" is superior to certain others in that the pupils of the one group make consistently higher scores on a standardized test than do those of the other groups. If the work is properly done, we must admit that when the like conditions are repeated the like results will follow. But it does not follow from this alone that schools should therefore follow the type of "motivation" thus approved, and this for at least two reasons. One, that there are other attendant results which were not measured by the tests. These may be some good and some bad—good for one type of "motivation" and bad for the other. When these are properly weighed in with the test results, superiority may be shifted. The second reason for holding up the conclusion is that best results by test are not necessarily best in life. To learn in the sense of being able to stand an examination is not the same thing as to learn in the sense of use in life. Ability

may be present but disposition lacking; or ability may be present for one set of cues but absent for a different set of cues. Life's dispositions and cues are different from those of the examination room.

It may be rejoined—and quite properly—that adequate scientific criticism would point out these same limitations at least to the degree of indicating the conditions beyond which the conclusions do not necessarily hold. To this two replies may be made. First, it appears by actual observation that those not sensitive to the wider values jeopardized by these unwarranted extensions are often correspondingly insensitive to the bad science involved. The studies that have been published regarding optimum class size furnish a flagrant example of this unwarranted extension, and it can not be claimed that the sponsors—at any rate—are inconspicuous in scientific research. Meanwhile it has been left to the "philosophizing" interest to urge the limitations. The second reply is that any final judgment as to range of application is impossible apart from the process and outlook herein called philosophizing.

This principle denying the right of general validity to conclusions reached under abstracted conditions, if it be allowed to stand, queries all unconsidered applications of strictly scientific findings, for such findings are as a rule made on abstracted data. Laboratory conditions need not be life conditions; and, more generally, measurement of one type of outcome does not *ipso facto* measure all the attendant outcomes. And this limitation when applied is often severe.

The fourth and final situation calling for philosophizing has to do with *questioning assumptions*. It was pointed out above that many assumptions of science have been given by outworn philosophies. Whitehead says in connection:

> There will be some fundamental assumptions which adherents of all the variant systems within the epoch unconsciously presuppose. Such assumptions appear so obvious that people do not know what they are assuming because no other way of putting things has ever occurred to them.[4]

Questioning assumptions is always a possibility. We never know when it will be successfully done. And progress of a very definite kind lies here, probably the most strategic kind of progress. Whitehead elsewhere,[5] speaking of an analogous revision of our working body of abstractions, says:

> It is here that philosophy finds its niche as essential to the healthy progress of society. It is the critic of abstractions. A civilization which can not burst through its current abstractions is doomed to sterility after a very limited period of progress.

Speaking for myself I feel compelled to question the common notion of the educative process. Its assumptions seem to be unfounded. This common notion in effect seems to assume among other things (*a*) that analytic learning should come first, to be followed at quite a distance by synthetic; (*b*) that, as has already been pointed out, only one thing is learned at a time; (*c*) that life so far as learning is concerned is both fixed and knowable in advance, without significant admixture of the precarious; (*d*) that learning as fixing in habit will suffice (that is, to the virtual exclusion of any creative aspect of learning), and (*e*) that learning to give back on demand is sufficient for education purposes. Each of these I should wish to deny and with them the customary school procedure based on them. I wish accordingly to revise most terms as used in educational discussion, such as subject-matter, study, learn, teach, educational objectives, minimum essentials. If all these terms as currently used do in fact commit us to indefensible assumptions, then it behooves us

[4] A. N. Whitehead, "Science and the Modern World," Macmillan, 1925, p. 69.
[5] *Ibid.*, p. 82 f.

to examine into the matter. And I should myself wish, moreover, to claim that such far-reaching assumptions as these implicate us with life and its values in such way that the examination can not be adequate till again the philosophizing outlook has been invoked.

It may in connection be worth while to call attention to two limitations found in much of current psychology which result, it seems fair to assert, from unwarranted philosophical assumptions. First of these is the evident shunning by many writers of such words as thinking, meaning, idea, ideal and consciousness (in any of its derivatives). It seems practically certain that this has been brought about by the Cartesian dualism already referred to and the definite wish to explain "mind" away or to reduce it to a terminology suited to "body." There is at times a definite disposition to teach that such things do not function in experience. One of my students last summer thus objected to me that I seemed to think that "ideas" really function, apparently not realizing that he was attacking an "idea" with "ideas" he had gained from an author who seemed to him to prove that "ideas" can not function. If these writers who are squeamish about "consciousness," thinking, ideas, and the like could but get rid of the old dualism, they could then see how unwarranted is their effort at denying what after all is their own chief stock in trade, as it is of all who are trying by thinking to improve affairs. Revision of certain current conceptions of "consciousness," yes—there are many unwarranted conceptions in connection, and all resulting, it appears, from this same dualism; but denial of any and all validity to conscious action, idea, intention or purpose, no—without these we can not live as humans.

A second warping of psychology due to bad assumption is found in the failure to discuss psychology and education in terms of doubtful or hazardous life situations. The old curriculum was limited to content where the teacher knew "the answer." The pupil might be in doubt, but no good teacher could fail to know. The (apparently) unconscious assumption was twofold: one that education is for the immature only and is concerned only and exactly with what competent elders already know is true and right; the other that the world of affairs and finally the universe itself contains nothing essentially unknown or precarious. Most who have not thought seriously of the point—and most have not—hardly see the point or bearing of the matter. The result is that for most people a curriculum is necessarily matter-set-out-to-be-learned and we-who-are-expert at any rate know the answers. This is the starting point of most educational psychology—and sadder still the ending point. If contrariwise we could but get it clearly in mind that—so far as we can tell—the actual universe includes, along with dependable uniformities, much inherent precariousness and uncertainty, and that both elements are inextricably interwoven in life as such with its efforts, then we should see the need for a different emphasis in education and a correlative development of psychology to take care of it. The more one thinks of it the more astonishing it appears that so little note has been taken of this so obvious precariousness. It with the dependable uniformities must supply the two legs which together are absolutely necessary if life and thought are to go forward in effective fashion.

And thus we reach the end. "Philosophizing" and the processes of "exact" sciences appear as complementary. Both are needed if life and education are successfully to face their problems. Neither

can take the place of the other.[6] Nor if properly used can they conflict. And I should myself like further to conclude that education can never become a science. Within education science will extend itself more and more and will render greater and greater service; but always—so long as this world stands—will there be problems, nay regions of problems, with which the processes of "exact" science are insufficient to cope. With such what is here called philosophizing is forever essential.

CRITERIA FOR JUDGING A SCIENCE OF EDUCATION

By Dean E. M. FREEMAN

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A SCIENCE comprises a considerable body of orderly information of some department of human knowledge. Such a body of information needs to be large enough and varied enough to permit of intelligible classification, and classification is the ordinary means of effecting an orderly arrangement. It is even more characteristic of a science, however, that it requires proof for these facts. Repeated observations of competent and unbiased observers and specific, controlled experiments are tests which facts must pass for admittance to a reputable science. Facts may, nevertheless, enjoy only temporary validity. Before Einstein, did not light travel in a straight line?

It is quite obvious that in discussing a science of education one must also define more specifically his understanding of the important factors involved in the term "education." In the broadest sense education involves all the adjustments of a human being to his heredity and environment. The most complete education of an individual would therefore imply a thorough analysis and understanding of inherited characters and the best methods of adjustment of this biological complex of inheritance to the environment under which the individual is destined to live. The education of an individual is, in a very real sense, a biological experiment and may properly be approached and discussed from that angle.

The origin and history of the material. The subject of this experiment is an organism that begins its existence in the union of the nuclei of two sex cells. Nor is this exactly the beginning. These same sex cells are merely particles of an unbroken stream of living substance whose ultimate origin is completely obscured in the earlier eras of our earth's history. How or when this protoplasm began we can only guess. No man knows. It is because of that ignorance that we still distinguish the biological from the physical sciences. What happens when at death protoplasm loses its properties of life is an equally unsolved mystery. But we do know that direct continuity of living substance is necessary for its existence. Within the first and last limits of our experience, living substance is immortal. In this endless stream an indi-

[6] At the meeting where this paper with others was presented a proponent had seemingly made the claim for "science" that it of itself sufficed to care for all life's problems. A question from the floor asked this proponent how his science would tell the farmer whether to buy the water-works or to send Mary to college. The reply was (I speak from memory) that the farmer and his wife faced a specific situation, and with such science does not treat, that science deals with general principles. In my judgment he answered correctly, but in so doing yielded the claim that his science does suffice for all life's problems. And I should wish to add that a theory of education based on such science alone is totally inadequate to care for the many, many such specific situations which arise daily in the lives of us all.

vidual is merely a temporary pool from which continuity is possible only by means of the tiny sex cells which are the minute outlets joining others of similar, yet dissimilar, history to continue the flow of life. The starting material of each educational venture is, therefore, a creature of untold millions of years of past history, which have left on it their stamp of form and habit.

How little we know of the history and methods of flow of this plastic substance that is so fundamental to education! Biologists may learnedly claim that ontogeny or life history of the individual repeats phylogeny or race history, but none will be so rash as to assert that all the past experiences are minutely and slavishly recalled. One may be socially humiliated to the point of a firm conviction that one of his most potent ancestors was a crawling worm, one may be financially duped to a consciousness of probable affinity with certain despised fish called suckers, but one can hardly claim the sensations of all our myriad ancestors. Yet certain of our past experiences of form and habit as a race are unmistakably evident in our own life as individuals.

Contributions of biological sciences. Biology has made gratifying progress toward an understanding of the exact mechanism through which the experience of past individuals is transmitted to succeeding individuals in the stream of our life. The nucleus of the sex cell with its complicated chromosome mechanism is possibly a depository of individual and race experience. It apparently furnishes the agency for the perpetuation of factors of form and habit as well as devices for the adjustment of experiences into new combinations which succeeding individuals will submit to the critical test of selection for fitness. Yet even the most ardent advocates of the chromosome theory of heredity will probably admit that only a modest beginning has been made in the search for a real understanding of the physical basis of heredity.

Heredity and education. I have dwelt at some length on the biological origin of man because, if education *be* a science, *as* a science it is vitally interested in the nature of the materials which it must educate.

No educational experiment such as is comprised in the complete development of a human being can ignore the intricate problems of heredity and past experience, so marvelously epitomized in the microscopic and ultramicroscopic structure of sex nuclei.

It is an obvious conclusion that a science of education demands the greatest possible knowledge of the facts and mechanics of heredity. The similarities and dissimilarities between individuals as they exist at the moment of origin of these individuals are facts of fundamental importance in the interpretation of the subsequent reactions of those individuals to their environment. A science of education will need to analyze and to attack unremittingly every phase of heredity.

Adjustment of inheritance—eugenics. But education involves adjustment, and the first conceivable adjustment in the individual's education is that to heredity. We can not, of course, select our own fathers or grandmothers. But we can influence the adjustment of future individuals to their heredity. Eugenics is the modern branch of education which attempts to improve the human material for future educational experiment. It builds for race improvement in the future. It can only be expected at the present to deal with elementary problems and in a more or less empirical fashion. But it is equally clear that the adjustment of the individual to his heredity is the starting-point of his educa-

tion and probably by far the most important factor in that education. The most effective results of eugenics in a science of education must await a more solid basis in our knowledge of heredity. When race or national competition becomes sufficiently keen, conscious and well-ordered adjustment by eugenic principles will become a powerful educational and sociological weapon which may determine the dominant races of the future.

Of course, our present educational procedures by no means ignore the problem of heredity. On the contrary, there is a rapidly increasing recognition of its importance. Provisions for congenitally backward children, segregation of classes on ability basis and personal studies are just a few reflections of a recognition of inheritance differences. Heredity has also to do with vocational guidance, which is a most precarious educational job concerning which we know little or next to nothing. Vocational guidance presupposes a knowledge of inherited abilities, skills, likes, dislikes, mental and physical qualities. We are learning to make scientific tests of some of these qualities and here and there we are finding such tests useful in guiding a student to his life work.

Educational problems of heredity. A science of education is so fundamentally interested in every phase of heredity and its adjustment that it is clear that the educator must have the assistance and cooperation of many other scientists such as biologists, psychologists, physicians, sociologists and other students of man's physical, mental, economic and social relations. A science of education needs scientific experimentation in every phase of inheritance through a complete and coordinated program. It has already accumulated a vast array of facts from many fields, and research is continuously adding to that store.

We need more research on the structure of the nucleus and of the chromosome; more knowledge of the mechanism of transmission of inheritance factors. More genetic studies and experiments will be needed to determine the transmissibility of characters, factors of linkage, the nature and origin of mutations, new and possible laws of inheritance. Psychologists will need to multiply experiments in order to understand more clearly the complex processes of the human mind and their relation to inheritance. The experiments of the biologists on the intelligence of animals other than man may help us to read the past history or to understand the origin of our mental processes. Sociologists and economists will need to analyze by scientific methods the more complex conditions of man's social and economic institutions to which the individual must adjust himself in the process of education and which may conceivably have far-reaching influence on his inheritance.

Experiments and more experiments are the crying need of our understanding of man as he first appears on our educational stage in the form of a fertilized egg cell—of our understanding of this new being, microscopically minute in size yet constituting the entire inheritance from which the future man is to be developed and educated—biologically a single cell yet an epitome of untold eons of evolutionary history—morphologically a single nucleated mass of protoplasm yet potentially a bewildering complex of physiological forces determining to a large though uncertain degree the mental, physical, social and economic possibilities of a human life span—educationally a student visible to the educator only through a powerful microscope, yet constituting the entire initial material from which the educator must work out his life-long educational experiment of adjustment to environment.

Subsequent adjustments. If a science of education is vitally interested in the initial material for its experiment of education, it

is no less interested in the adjustments of that material to the kaleidoscopic changes of its subsequent environment. A science of education will demand the best possible adjustment, the improvement of every advantageous opportunity, the elimination of obstacles and the realization of the utmost possibilities of the student. It may safely be assumed that educational processes and procedures are still capable of improvement. The last word in teaching methods has not yet been spoken.

While the adjustment of an individual to his environment is primarily the concern of that individual, it is the special task of the educator in our social organization to show how these adjustments may best be made. A liberal interpretation of the term "educator" would include all who render service in educational adjustment. If education aims at the complete development of improved citizenship, educators are, of course, by no means confined to schools and colleges. In the resulting and bewildering array of educational enterprises of adjustment are there any general principles or procedures which may properly be demanded of a science of education? I believe there are.

The science or sciences of education have unquestionably the greatest body of information of any department of human knowledge. This information has been accumulated in every nook and corner of the world and throughout historic times. I presume it may be safely asserted also that this information has organized itself in a more or less orderly arrangement. When we come to the validity of the facts of education as a science, we encounter specific and characteristic demands.

Validity of facts of science of education. It has been pointed out that the facts of a science acquire validity chiefly by one of two methods. The first of these is recorded observation. Repeated observation by competent and unprejudiced observers, accuracy and completeness of record of special conditions surrounding the phenomena under observation are factors which strengthen claims for validity. Like every other science, education will find large quantities of chaff in the harvest from this particular source of educational knowledge. A science of education will reject facts based on superficial observation or on inaccurate or incomplete records.

Experimentation is undoubtedly the most valuable method of establishing facts. But not all experimentation is of equal value. A true and accurate account is obviously an essential of any good experiment. Science demands that the conduct, conditions and results of an experiment shall justify the conclusions, and that the published data permit the reader to judge as to the soundness of these conclusions. A science of education is indeed an extraordinary exception in the brotherhood of sciences if it does not also find even among its experimentally contributed facts many which are worthless because of faulty experimentation or inadequate records.

A science of education has then criteria in common with other sciences. In certain features, however, it has peculiar problems and difficulties to overcome. The educational adjustments of man to his environment involve a greater complexity in experimentation than is encountered in most other sciences. The difficulty of controlling all factors of the experiment are obvious where the experiment must be carried on in such an environment as our social and economic organization affords. And most important of all is the fact that the subject of each experiment is man himself, whose inheritance presents a complexity of factors not easily reducible to simple terms. But this complexity by no means renders experimentation impossible. It merely calls for a high order of intelligence,

ingenuity and organization on the part of the experimenter and educator.

Educational experiments. The soundest source of the facts of every modern science is the controlled experiment. The more accurate the control of all factors, the more definite and certain are the results and conclusions. A science of education is no exception to the rule. I have already discussed the need of many kinds of experimental research necessary for a more complete understanding of microscopic man as the initial subject-matter in every educational venture. The need of experimentation is just as great in all the subsequent adjustments to environment which constitute his life education. Each adjustment is a biological problem and must in the end be solved, not by accumulated opinion or prejudice, but by proven experiment. Without this principle of development, education can not claim the designation of a science. Without the basis of experimental proof of laws and procedures it must remain an art founded on traditions, opinions and past experiences of empirical origin but unanalyzed and incompletely understood.

That this experimental principle of educational procedure and organization is so little appreciated and so rarely practiced seems to me one of the most striking anomalies of our boasted age of science. The amazing fact is that even teachers of science in the halls of highest learning ignore this principle of an experimental basis of educational procedure. The erudite scientist who demands the most rigid experimental proof of those facts which he admits to his subject-matter science seldom thinks of submitting his objectives, methods and results of teaching to the same rigid tests of scientific experiment. Does he obtain the results he thinks he obtains? Are his methods the most effective, the least time-consuming, or the most appropriate? Does he actually attain his objectives? Perhaps he does all these things; but how many can furnish the same sort of experimental proof that they demand of similar claims in the subject-matter of their science?

Perhaps the difficulty lies in the fact that the scientist forgets that he is an educator as well as a scientist, and that his profession of education may have the dignity of another science provided he uses the same rigid method of experimentation to guide him in a scientific manner of teaching. And conversely, the educator forgets that even though not a scientist he may be scientific in his methods.

Summary. Education, if it be a science, must be judged by the same criteria as other sciences. Its facts, law and procedure must be based on sound scientific proof. In the last analysis, that proof must rest upon sound experimentation.

A science of education concerns itself primarily with a most biologically complex material, man. An understanding of that material calls for the support and cooperation of numerous cooperating sciences. The adjustments of that material to every phase of life's environment are biological problems which demand the techniques and methods of sound biology. A science of education is, in a sense, a complex of all the sciences. It is the task of the educator to apply the results of these sciences to his particular job of adjustment of man to his environment. When this adjustment conforms to the demands of scientific procedure, a complete science of education will result.

(Papers in the discussion on the relations of philosophy to research by Professor George S. Counts and Professor Frank N. Freeman will appear in a later issue.)

EDUCATIONAL EVENTS

THE UNREST AMONG STUDENTS OF THE SPANISH UNIVERSITIES

THE *Journal* of the American Medical Association gives the following account of the unrest among students of Spanish universities:

General Primo de Rivera, as the head of the government, has aided the general progress of Spain. Public instruction and hygiene have been improved, and large amounts of money have been provided for schools, sanatoriums, parks, dispensaries, hospitals, roads and ports. His policy, however, has caused dissatisfaction and some disturbances among the students. The students of the University of Madrid protested vigorously against the permission given by the government to men of religious sects to award scientific titles and to act as jurors at the examinations of the students. The government, without giving any attention to the reason for the protests, demanded the obedience of the students, but they disobeyed the order. The police were ordered to the universities, but this act was considered, both by students and by teachers, as a violation of the rights of the university. The police fired into the air, wounding a man, but not seriously. The government then ordered the university to be closed until the fall of 1930. The students who wish to take their examinations should pay their tuition at some other university and be examined there. The students at the Universities of Barcelona (the second in Spain) and Oviedo made the same protests, and these universities also were closed by the government. In Santiago de Galicia and in Valencia, the faculties protested, and the same punishment was imposed on these universities. In Valladolid, where the disturbances have been of minor importance, the teachers have imposed another payment of tuition on the students. The students of medicine and the women students were not guilty of these disturbances, but they were also obliged to pay tuition again in order to be examined. Some of the professors who would not stand this state of affairs resigned; others have protested in writing, and still others have declared adherence to the policies of the government. The parents of the students were affected by these disturbances more than any one else as they were obliged to make a repayment of the tuitions. They hold the teachers responsible for exerting influence on the students. In connection with the official inauguration of the universal exposition of Seville and Barcelona the government has resolved to pardon the students. Thus the universities have been reopened, and university life is going on as usual.

GERMANY AND RHODES SCHOLARS

AN Associated Press despatch reports that German students have been restored to the list of those eligible for the Rhodes scholarships at the University of Oxford. The restoration is not on the full basis that existed before the war, but for two scholarships annually, tenable each for two years, permitting four German scholars at Oxford.

Announcement of the action was made by Mr. Stanley Baldwin, former premier, at a dinner at the new Rhodes House on June 21, honoring the twenty-fifth anniversary of the founding of the scholarships. He said that it had been decided upon by the trustees, subject to approval of the university authorities. The Prince of Wales was present and, in his toast to the Rhodes scholars, said:

I am delighted to hear the trustees are going to renew German scholarships.

We welcome the Germans back most heartily. . . . There will be found on the rolls of honor of the university the names of the German Rhodes scholars who fell in the war, which shows that this foundation is not based on any narrow racial feeling and that its ideals are those which all may follow, forgetful of past enmities.

It was pointed out that out of fifty-seven German Rhodes scholars ten were killed in the World War, one of these being the son of Chancellor Von Bethmann Hollweg. Their names are all inscribed on the roll of honor in the new Rhodes House.

Mr. Baldwin, in referring to the trustees' decision, said the board had considered the full restoration of the German rights, considering it wise in the interests of peace. They had been deterred, however, by the difficulty in withdrawing any allotment which had been made to the British dominions since 1916, and by the crowded condition of the school. New funds would be necessary before full restoration was possible.

The feature of the dinner was the presentation to the Rhodes House of two autographed

letters of Cecil Rhodes, obtained through the good offices of President Hoover, in whose war library in California they were discovered. One of the letters said: "The last thing I want is a book worm."

In the other Mr. Rhodes discussed British colonial students, the best of whom he recommended to be sent to different parts of the world to "maintain the imperial thought." He suggested that "in the colonies they would be better unmarried, as consideration of babies and other domestic agenda generally destroys higher thought."

SUMMER CAMPS IN ITALY FOR ITALIAN-AMERICAN CHILDREN

ONE hundred and sixty-eight boys and girls of Italian extraction sailed from New York on July 5 to attend summer camps for two months in Italy.

As reported in the New York *Times*, the purpose of the trip, according to officials of the Fascisti League of North America, under whose auspices the pilgrimage is made, is to offer an opportunity to the children to see the land of their ancestry and to study the art, customs and traditions of the country. They will pay a visit to Premier Mussolini and the American Ambassador and will visit the principal cities of Italy before returning on September 10.

The children, with their families, assembled in the Gallo Theater, 254 West Fifty-fourth Street, where brief speeches were made by representatives of the Italian colony in New York. They then marched through Fifty-fourth Street to the North River and aboard the liner. The boys wore uniforms similar to the boy scout uniform and carried knapsacks, while the girls were dressed in black skirts, white blouses and black caps and carried black brief cases.

They were accompanied by nine nuns and fourteen novices from the Villa Victoria at Trenton, N. J., who will have the girls in charge throughout the trip. Bishop Thomas J. Walsh, of Newark, was sent in charge of the delegation, which was composed of forty-eight girls and one hundred and twenty boys from eastern cities of the United States.

After assembling on deck with a large banner entitled "Lega Fascisti del North America" and carrying alternately an American and an Italian flag, the group was addressed by Ambassador de Martino, who wished them *bon voyage*, congratulating them on their appearance and saluting them in the Fascisti manner. He was accompanied by Emmanuel Grazzi, Italian Consul-General.

Mayor Walker made an address after being introduced by Camillo Canali, general secretary of the Fascisti League of North America.

INCREASE OF EXPENDITURE FOR EDUCATION

THE report of the Committee on Recent Economic Changes of the President's Unemployment Conference, carried out under the auspices of the National Bureau of Economic Research with funds provided by the Carnegie Corporation and the Laura Spelman Rockefeller Memorial, has been published by The McGraw-Hill Company.

The committee is composed of Walter F. Brown, Renick W. Dunlap, William Green, Julius Klein, John Lawrence, Max Mason, Adolph C. Miller, Lewis E. Pierson, John J. Raskob, A. W. Shaw, Louis J. Taber, Daniel Willard, George McFadden, Clarence M. Woolley, Owen D. Young and Edward Eyre Hunt, *secretary*. The data relating to education were gathered by the National Bureau's section on "Changes in Consumption and the Standard of Living," under the direction of Dr. Leo Wolman.

Roughly, $2,500,000,000 of the total amount spent on private and public education in 1925–1926 represents free education. In that year universities and professional schools spent $407,400,000, of which $101,499,000 was returned to them in the form of tuition fees. Of the $190,589,000 spent by private elementary and high schools, it is estimated that from a third to a fourth was not covered by tuition receipts.

The *per capita* expenditure in 1926 for pupils in the public elementary schools was $63.31; in public high schools, $195.74, and in universities and colleges, $423.

Total expenditures increased by 250 per cent. between 1913–14 and 1925–26. Almost half this increase was for the free elementary schools. At the same time the enrolment in elementary schools rose from 17,934,000 in 1913–

1914 to 20,984,000 in 1925–26, or about 17 per cent.

One item in the rapid increase in the total expenditures of recent years has been the increase in the amount expended for grounds, buildings and contents. The annual capital outlay per pupil in average daily attendance amounted only to $7 from 1916 to 1918; by 1925 this amount had increased to $21.86, and in 1926 stood at $20.47.

A large increase in expenditure for education took place in the appropriations for public high-school education. These increased ten-fold from $68,911,000 in 1913–14 to $697,912,000 in 1925–26, while the total enrolment increased by more than 200 per cent., that is, from 1,218,000 to 3,757,000.

The number of college and university students likewise grew with great rapidity from 325,219 to 822,895 during the same period. It is estimated that expenditure for free college and university education increased in little more than a decade by nearly 350 per cent.

Figures show a large increase in expenditures after 1918. For public elementary schools, including kindergartens, $599,383,000 was expended, while in 1921–22 expenditures mounted to $1,163,374,000; in 1925–26 they had increased to $1,328,396,000. Public high-school expenditures increased from $162,876,000 in 1917–18 to $417,297,000 in 1921–22, reaching $697,912,000 in 1925–26. For universities, colleges and professional schools the figures are: $137,055,000 for 1917–18, $272,815,000 for 1921–22 and $407,400,000 for 1925–26.

APPOINTMENTS AT THE UNIVERSITY OF VIRGINIA

ELECTION of ten new members to the faculty of the University of Virginia was announced by President Edwin A. Alderman, after the recent meeting of the rector and visitors. Adoption of a budget of $1,870,000 for the ordinary expenses of operation during the university year 1929–30 was another action of the visitors, and this body also voted to reduce tuition and fees for non-Virginians in the department of graduate studies from $275 to $150. The request of the Jefferson Senior High School of Roanoke to have a copy made of the statue of Thomas Jefferson by Karl Bitter was granted. The Bitter statue of Jefferson occupies a place of honor on the lawn of the university.

Dr. Bruce Williams, professor of political science in Cornell University, was recalled by vote of the visitors to fill the chair of political science. Professor Williams went to Cornell last September after having taught politics and government at Virginia for seven sessions. Dr. Walter A. Montgomery, professor of ancient languages in the College of William and Mary since 1920, was elected professor of Latin. After receiving his doctor's degree from Johns Hopkins in 1899 he held positions on the faculties of the University of Arkansas, the University of Mississippi, the University of the South and the University of Richmond before going to William and Mary nine years ago.

To fill the newly created position of athletic director James Glenn Driver was elected. Mr. Driver has been director of student activities and of athletics at the University of South Carolina since 1924. Oron James Hale, Harrison fellow in history at the University of Pennsylvania, was chosen to be assistant professor of history. He holds degrees from the University of Washington and the University of Pennsylvania, and he has served as instructor at Pennsylvania. Dr. Archibald Bolling Shepperson was made assistant professor of English. He has been acting assistant during the current session. Dr. Edward L. Cory was elected assistant professor of physiology. Dr. Cory has a bachelor's degree from Western Reserve University and a Ph.D. from Yale. Charles M. Daniel, for the last two years assistant professor of mechanical engineering in the State College of Washington, was elected acting assistant professor of mechanical engineering. Mr. Daniel has taught engineering at the University of Maine and at the Georgia School of Technology.

NATIONAL CONFERENCE ON THE HEALTH AND PROTECTION OF CHILDREN

PRESIDENT HOOVER made the following announcement on July 2:

I have decided to call a White House conference on the health and protection of children. This conference will be comprised of representatives of

the great voluntary associations, together with the federal and state and municipal authorities interested in these questions. Its purpose will be to determine the facts as to our present progress and our future needs in this great field and to make recommendations for such measures for more effective official and voluntary action and their coordination as will further develop the care and protection of children.

The conference will not be assembled for another nine months or a year in order that there may be time for complete and exhaustive advance study of the facts and forces in progress, of the experience with the different measures and the work of the organizations both in voluntary and official fields.

In order that these determinations may be effectively made and intelligent presentation given at the conference, a series of committees will be appointed from the leaders in different national organizations and will be assisted by experts.

The subjects to be covered embrace problems of dependent children; regular medical examination; school or public clinics for children; hospitalization; adequate milk supplies; community nurses; maternity instruction and nurses; teaching of health in the schools; facilities for playgrounds and recreation; voluntary organization of children; child labor and scores of allied subjects.

To cover the expenses of the preliminary committees and the conference and follow-up work which will be required to carry out the conclusions of the conference, a sum of $500,000 has been placed at my disposal from private sources.

This will be the first national conference held in review of this subject since the conference called by President Roosevelt in 1909. That conference resulted in a great impulse to social and protective activities in behalf of children.

It is proposed to include in the interested groups, the educational associations so far as education bears upon health and protection of child life. It is not the purpose of such efforts to invade or relieve the responsibilities of parents but to advance those activities in care and protection of children which are beyond the control of the individual parent.

I have communicated with a number of the larger voluntary bodies and public officials throughout the country and find they are unanimous in the belief that such a national review is urgently needed in order to establish a new platform for further advance, and they are in agreement with me in the necessity of exhaustive examination of the whole situation and the preparation of material before such a conference is called if we are to secure effective results from the conference.

We as a nation are fundamentally concerned with reinforcement of the equality of opportunity to every child and the first necessity for equal opportunity and protection.

The work of the conference will be under the direction of Secretary of the Interior, Dr. Ray Lyman Wilbur, with the cooperation of the Secretary of Labor, James J. Davis. Dr. Harry E. Barnard, formerly state health commissioner of Indiana, has been selected as executive secretary of the conference and a preliminary committee is in process of appointment which will expand its own membership and will determine the special subjects to be investigated by special committees outlined above and make recommendations for their personnel.

The expenses of this survey and conference will be borne by private individuals, who have placed $500,000 at the disposal of the president. It is reported that President Hoover also has contributed to this fund. It is known that one of his great passions is love of children, and that he is privately interested in aiding enterprises for the comfort of children and the education of poor boys. Preliminary committees to plan the scope of the conference will be set up immediately under the direction of Secretary Wilbur.

CONFERENCE OF MACY FELLOWS AT GENEVA

THE International Institute of Teachers College, Columbia University, has arranged a conference at Geneva on educational research and experience of former Macy fellows in all the major countries of the world, according to an announcement made by Professor Milton C. Del Manzo.

Representatives to the Geneva conference have been chosen among prominent educators who have studied at the International Institute as recipients of fellowships offered by V. Everit Macy, chairman of the board of trustees of Teachers College.

It is expected that the final report will contain suggestions as to the value of new educational methods and systems, as well as a comprehensive summary of educational conditions throughout the world and the results of reforms already accomplished by the leaders who will meet at Geneva.

Internationally known educators who will attend the Geneva conference include: Dr. E.

Hylla, Ministry of Education of Prussia; Dr. D. Janossy, member of the Ministry of Education, Budapest, Hungary; Miss Rosa Manbar, research worker at Bryn Mawr; Dr. Albert Pinkevitch, president of the Second State University of Moscow, and Dr. Chang Poling, president of Nan Kai University, China.

The program at Geneva will be under the direction of Dr. Paul Monroe, director of the International Institute. Other members of the faculty of the institute who will attend the conference at Geneva are Dr. George S. Counts, associate director; Dr. Thomas Alexander, professor of education, and Dean William F. Russell, of Teachers College.

A fund has been given by Mr. Macy to provide for the accommodation of the delegates as guests of Teachers College and the International Institute. Meetings of the conference will be held at the Hotel Carlton Park in Geneva.

EDUCATIONAL NOTES AND NEWS

MISS RUTH PYRTLE, principal of Bancroft High School, Lincoln, Nebraska, has been elected president of the National Education Association to preside at the meeting to be held next year in Columbus, Ohio. We hope to print next week an account of the Atlanta meeting, followed by some of the principal addresses.

PRESIDENT HERBERT HOOVER will be the honorary president of the First International Congress on Mental Hygiene which will be held May 5 to 10, 1930, in Washington, under the auspices of the national committees for mental hygiene in this country and Canada, together with the national societies for mental hygiene in all other countries in which the movement has been organized.

THE model for the statue of President Emeritus William Oxley Thompson, of the Ohio State University, has been finished in plaster cast form by the sculptor, Professor Erwin F. Frey. The figure when finished will be 11 feet high and is the gift of several classes as their memorial to the university.

BROWN UNIVERSITY, at its recent commencement, conferred the degree of LL.D. on Waldo Gifford Leland, permanent secretary of the American Council of Learned Societies.

ON the occasion of the commencement exercises of Hamline University, the degree of doctor of pedagogy was conferred on Dr. Guy Everett Maxwell, president of Winona State Teachers College, Minnesota.

DR. JOHN ALFRED MOREHEAD, of New York, executive director of the National Lutheran Council, has been made doctor of theology by the University of Pressburg, Czechoslovakia.

AT the recent Boston meeting of the American Home Economics Association, Miss Margaret M. Justin, dean of the Kansas State Agricultural College, was reelected president.

WALLACE C. BOYDEN, for twenty-nine years principal of the Boston Teachers College, is retiring from active service.

W. P. ABBOTT, for seventeen years superintendent of the Greenfield, Massachusetts, schools, has tendered his resignation.

ERNEST W. ROBINSON, superintendent of schools of Fitchburg, Massachusetts, has resigned after serving for fifteen years.

DR. W. GARSTANG, professor of zoology at the University of Leeds, England, has been appointed pro-vice-chancellor.

RUSSELL GALT has been appointed the head of the college of arts and sciences of the American University at Cairo, with the title of dean of the college.

PROFESSOR HARRY A. BIGELOW, professor of law in the University of Chicago, has been made dean of the law school.

DR. EARL E. FRANKLIN has been appointed associate professor of education at the Johns Hopkins University to succeed Dr. J. A. Blackburn.

DR. W. T. ROOT, professor of psychology in the University of Pittsburgh, has become head of the department of psychology to succeed Dr. J. H. White.

LAURENCE BRADFORD PACKARD, professor of history at Amherst College, has been appointed visiting professor of history at Yale University.

DR. ROBERT E. BROWN, recently pastor of the First Congregational Church of Oakland, California, who has served on the board of trustees of Oberlin College for the last eight years, has been elected to the newly established Bosworth chair of theology in the graduate school.

DR. WILLIAM S. SCHLAUCH, chairman of the department of mathematics of the High School of Commerce of New York City, has been appointed assistant professor at New York University.

AT the College of the City of New York, Professor George M. Falion has been appointed director of Townsend Harris Hall High School to succeed Dr. J. Carleton Bell. Dr. Bell will return to his post as associate professor of education at the college in September. Dr. Owen A. Haley and Dr. Samuel Joseph, of the department of government and sociology, have been promoted to assistant professorships and Dr. James Arthur Dawson, of Harvard University, has been appointed assistant professor of biology.

AT Ball State Teachers College, Muncie, Indiana, Dr. Albert LaFleur, who received his Ph.D. degree at Clark University, will be head of the department of science. Dr. Edgar A. Menk, of the University of North Dakota, will be the new head of the foreign language department. Dr. Earl A. Johnson, who has just received his Ph.D. degree from Indiana University, has been appointed principal of the new Burris School, which is rapidly nearing completion. Dr. Ralph H. Ojemann, who has been teaching this summer in the University of Kansas, and Dr. J. M. Shales, who has been teaching at State Teachers College, Mansfield, Penn., have been made associate professors of education. Dr. Ernest L. Sabine, who like Dr. Shales is a Canadian, will be the new associate professor of English. Scott Fisher, former coach and instructor at Ohio Military Academy, Cincinnati, has been appointed a member of the physical education department. Miss Frida Pliefle, formerly employed in the library at St. Paul, Minn., has been made assistant librarian. Twelve members of the faculty have been granted leaves of absence to do graduate work.

MAXWELL F. MARCUS, formerly of the consular service, now associated with Messrs. Oppenheim-Collins and Company, has been appointed a member of the Board of Higher Education, New York City, and a trustee of the College of the City of New York.

WILLIAM J. MCGRATH, youngest member in point of service of the Board of Examiners of the public school system of New York City, has been elected to succeed Henry Levy as chairman of the board.

PROFESSOR L. J. HARTZELL, of the Montana School of Mines, and Dr. Vincent G. Lava, an associate professor at the University of the Philippines, will study in Oberlin College next year as guests in the department of chemistry.

DR. CHARLES S. HOWE, who will retire from the presidency of the Case School of Applied Science at the end of August, will make his home in North Amherst, Mass., during the coming college year.

PRESIDENT ERNEST H. WILKINS, of Oberlin College, will lecture at the University of Denver on August 6, 7 and 8.

DR. JOHN GRIER HIBBEN, president of Princeton University, was the principal speaker at the annual Independence Day dinner of the American Society in London.

MISS EMILY HOWLAND, dean of educators in New York State, has died in Sherwood, N. Y., where until recently she had been active in her work as adviser of the Sherwood School, which was renamed Howland School in her honor four years ago. Miss Howland was a hundred and one years old.

DR. HERVEY S. COWELL, for forty-two years principal of the Cushing Academy at Ashburnham, Massachusetts, until he retired with the title of principal emeritus in 1926, died on July 6 at the age of seventy-four years.

LEONARD TRELAWNEY HOBHOUSE, Martin White professor of sociology in the University of London since 1907, died on June 21 at Alençon, Normandy, at the age of sixty-four years.

DR. L. C. TIDBALL, formerly commissioner of education of Wyoming, who was elected president of the State Teachers Association at the convention last October, has resigned because of removal from the state, and Miss Mae Winter, of Casper, vice-president, has assumed the

duties of president and will have charge of the completion of the program for the meeting in Thermopolis next October. The speakers at that meeting will include Dr. F. E. Spaulding, of Yale University; Dr. W. L. Uhl, formerly dean of the college of education of the University of Wisconsin, now dean of the school of education, Washington; Miss Madalene Veverka, primary supervisor of Los Angeles; Dr. W. J. Osburn, of the Ohio State University, who was formerly in charge of child measurement work in the Wisconsin State Department of Education; Dr. Lee Driver, rural school supervisor in the State Department of Education of Pennsylvania, and Dr. H. B. Wilson, former superintendent of schools at Berkeley, California, now National President of the American Red Cross.

TWENTY-FIVE professors, writers and publicists, the first section of the group of one hundred who will attend the fourth session of the Mexican Seminar of the Committee on Cultural Relations with Latin America, sailed on July 4 on the Ward liner *Mexico* for Vera Cruz. The seminar will start July 13 and end August 3. The other members of the seminar leave St. Louis by rail July 10. Among those who are attending the seminar are: Professor J. Fred Rippy, Duke University; Dr. William Franklin Sands, School of Foreign Service; Waldo Frank; Professor Charles G. Fenwick, Bryn Mawr; Professor Alva W. Taylor, Vanderbilt University; Professor Daniel J. Gage, Huron College; Professor Bessie Wessel, Connecticut College; Dean Bessie Leach Priddy, University of Missouri; Dean R. E. Mohler, McPherson College; Professor M. S. Pittman, Michigan State Normal College; Professor Frank A. Magruder, Oregon State College; Professor Irving E. Outcalt, State Teachers College of California; Morris Topchevsky, Hull House; Professor James H. Batten, Pomona College; Rabbi Leonard J. Rothstein, New York. Dr. Hubert C. Herring, director of the Committee on Cultural Relations with Latin America, who has been leader of the three previous seminars in Mexico City, will meet its members in Vera Cruz.

PRESIDENT HOOVER has approved the appointment of the following-named delegates to represent the United States at the international conference on commercial education in Amsterdam during the first week in September: Dr. Louis K. Manley, dean of the school of business, University of Pittsburgh; Clay D. Slinker, director of the Department of Business in Public Schools of Des Moines, Iowa; Dr. W. J. Donald, director of the American Management Association, New York; John G. Kirk, director of commercial education, Board of Education, Philadelphia; Dr. Henry Rand Hatfield, of the department of economics and commerce of the University of California; Dr. Emory R. Johnson, University of Pennsylvania; Dr. Leverett S. Lyon, the Brookings Institute, Washington; Dr. Thomas H. Healy, of Georgetown University; Lloyd L. Jones, of the Board of Education, Cleveland; Miss Eva M. Jessup, of the Board of Education of Los Angeles; John R. Gregg, president of the Gregg Publishing Company, New York.

AN Associated Press dispatch reports that President Hoover personally intervened to halt the plan of the prohibition unit to use the public schools of the country for dissemination of prohibition law observance propaganda. The president's first information concerning the issuing of a pamphlet proposing a course of prohibition study in the public schools was gleaned from the newspapers. He immediately signified his emphatic disapproval to treasury officials, who said that they themselves were unaware of the proposed campaign. Using proceeds from a fund of $50,000 made available by Congress for the dissemination of prohibition literature, Miss Anna D. Sutter, of the statistical and educational division of the Prohibition Bureau, had caused the pamphlet to be prepared for general circulation at the meeting of the National Education Association at Atlanta. She also had gathered together other literature in her proposed campaign of education.

APPLICATIONS for federal agent for trade and industrial education must be on file with the Civil Service Commission at Washington, D. C., not later than July 31. The examination is to fill a vacancy under the Federal Board for Vocational Education, Washington, D. C., and vacancies occurring in positions requiring similar qualifications. The entrance salary is $4,600

a year. Higher-salaried positions are filled through promotion. The duties are to act as the representative of the Federal Board for Vocational Education throughout an assigned region; to advise and collaborate with state boards in the promotion and efficient operation of trade and industrial schools and classes; to establish and maintain cooperative relationships with representatives of state departments, teacher-training institutions and national and state organizations dealing with problems of vocational education with special reference to trade and industrial education; to organize and conduct regional conferences attended by agents of state boards and representatives of teacher-training institutions; to review and make recommendations on state plans; to make studies and investigations in the field of trade and industrial education, and to perform related work as assigned by the chief of service. Competitors will not be required to report for examination at any place, but will be rated on their education, training and experience.

THE Hebrew Union College of Cincinnati announced on July 2 that its campaign for a $5,000,000 endowment fund had passed the $4,000,000 mark and that the $500,000 subscription of Julius Rosenwald, of Chicago, offered on condition that $3,500,000 was raised by July 1, was made possible as Mr. Adolph S. Ochs, publisher of the New York *Times*, and Mrs. Ochs had increased their original contribution of $200,000 to $500,000. The college, a rabbinical training school, was founded by the late Dr. Isaac M. Wise, father of Mrs. Ochs.

THE will of Charles F. Swift leaves to Middlebury College, after the death of Mrs. Swift, an endowment fund of $200,000, half of which is to be used for scholarships for the high school and the academy of Addison County, Vermont, and the other half to support lectures on constitutional law by "eminent authorities at the college."

IT was announced at the commencement exercises that $150,000 had been raised in the United States for the American University of Beirut in response to its recent appeal for funds.

BY the will of the late Ambassador Myron T. Herrick, the Herrick Public Library at Wellington, Ohio, will receive $50,000 to be used to construct a new wing for a children's library and $20,000 to be used as the library trustees deem advisable.

THE Frederick G. Bonfils Foundation, through its president, Mr. F. G. Bonfils, publisher of *The Denver Post* at Denver, Colorado, has announced the creation of 100 scholarships to the various Colorado schools of higher learning which provide for all costs exclusive of traveling and living expenses, and including tuition fees, school books, laboratory fees, material costs, matriculation fees, student assessments and library fees connected with the full four-year course of study. Mrs. Frances Wayne, of *The Denver Post*, will receive applications until August 1.

THE American Foundation has bought the extensive grounds and buildings of the Widemann Institute as a home for the International School at Geneva. The price was $220,000. Among those contributing were John D. Rockefeller, Jr., Thomas W. Lamont, Julius Rosenwald, Mrs. Emmons Blaine, Mrs. William G. Hibbard and Mrs. Robert Gregory.

EDINBURGH UNIVERSITY has received gifts for the reconstruction of the medical buildings at Teviot-place, Edinburgh, of £20,000 from the trustees of the late Sir William Dunn and £35,000 from the Rockefeller Foundation. This, with other sums available, secures the carrying out of a scheme whereby the buildings, which were erected in 1880, will be reconstructed to bring them into conformity with the requirements of modern teaching and research.

THE development of the new library of the League of Nations has been advanced by the receipt of a check of $500,000 from Mr. John D. Rockefeller, Jr., as advance payment on the $1,000,000 endowment he gave the institution last year. The commission will use the income in gradually increasing the present staff of the library, adding more books and periodicals, improving the catalogue system and otherwise making ready for the move into the new building when it is completed. Mr. Rockefeller, when he promised to endow the library, also offered another $1,000,000 to pay for the construction of the new building. It is one of three new League buildings which will be built in

Adrian Park, the other two being the assembly hall and the secretariat. The Council, at its Madrid session, gave general approval to the plans, on which the architects have been working for some time, and the corner-stones of all three buildings will be laid during the September meeting of the assembly. The commission planning the organization of the library will meet at Geneva this month with William Warren Bishop, of the University of Michigan, as the American member.

THE Mexican Chamber of Deputies, meeting in extraordinary session, has granted President Emilio Portes Gil authority to declare the National University an "autonomous institution," free from government direction. The action was in acquiescence to the president's request made last week after a series of student strikes and riots begun when monthly examinations were substituted for term examinations in the university law school. Students in the galleries hooted Ezequiel Padilla, secretary of public instruction, whose resignation they had demanded, when he spoke before the deputies. The deputies, however, applauded him.

DOCTRINES opposed to the religion of the state (Roman Catholic) can not be taught in either official or private educational establishments, under terms of a decree signed by President Leguia, of Peru. Another proviso states that private institutions infringing on the law will be closed and properties confiscated. Moral and religious education given in all schools of the republic, private as well as official, will be subject to plans and dispositions the government dictates, with text-books limited to those approved by the ministry of education. Religious instruction prescribed in the foregoing may be dispensed with in the case of children whose parents belong to other faiths than the Roman Catholic, provided dispensation is solicited from the minister of education.

THE New York *Times* prints a special cable from Clarence K. Streit, Paris, under date of July 8, as follows: "Professor Umberto Cosmo, of the University of Turin, has been sent to the Italian penal island on a charge of writing a letter of thanks to Senator Benedetto Croce for the latter's opposition to the Lateran treaty and the Concordat, according to word received here. Charges are pending, it is stated, against sixteen students at the universities of Turin, Padua and Pavia, recently arrested for signing this letter, and most of them are meanwhile being held in prison. Many more students, it is said, signed the letter, which was a sort of round robin circulated in Italian universities, but only the envelopes containing the names of the men now held happened to be opened by the Fascist authorities in transit. Professor Croce, famous for his teachings in philosophy, was not only one of the seven senators who voted against the Vatican treaty, but the spokesman of the Liberal opposition to it in the senate. He was also one of the few senators who voted against other Fascist measures."

Nature reports that particulars of vacation courses to be held in Great Britain in 1929 are given in a pamphlet recently issued by the Board of Education. There will be courses in science subjects in England and Wales as follows: arranged by the board for teachers only—in physics at Cambridge and Harrow, in chemistry at Oxford, in biology at Cambridge, in engineering at Oxford, and in gas technology at Leeds; arranged by local education authorities—in chemistry at Nantwich, in biology at Brighton, Nantwich and Bingley, in rural science at Barry (South Wales), in mining and engineering at Swansea, and in regional survey at Folkestone; organized by university bodies—in biology at Cambridge, Great Ayton (Yorks), and at or near Birmingham, in psychology at Cambridge, Oxford, Bristol, Rocester (Staffs), Chester, Bangor and Harlech; organized by other bodies—in mine survey and economic geology at Camborne, in regional survey at Stratford-on-Avon, and in psychology of handwork at Chester. A novel course in mothercraft, organized by the board for teachers in elementary schools, will be held in London from July 22 to August 2. Only three courses for foreigners are announced, to be held at Cambridge, London and at Exeter. The board has this year, for the first time, included in the pamphlet particulars of vacation courses in Scotland, namely, courses for teachers arranged by the National Committee for the Training of Teachers, and courses, planned to be completed in two summers, of the ordinary university de-

gree standard, to be held at Edinburgh, in mathematics, physics, geography and biology.

ACCORDING to the *British Medical Journal*, the report of Dr. M. Matson, school medical officer to the Derry and Limavady Education Committee, Ireland, for the year 1928–29, stated that 74 per cent. of the children on the rolls presented themselves for general inspection. By far the most common defect was decayed teeth, from which 36 per cent. suffered more or less; 26 per cent. suffered from enlarged tonsils and adenoids and 9 per cent. from defective vision. Defective speech was more common than defective hearing. There were no cases of definite pulmonary tuberculosis, but a few suspicious cases were referred to their own doctor for observation. Many children were anemic; 316 were verminous. The school nurse visited 582 children at their homes, and paid 297 revisits to schools; subsequent to the medical inspection she noticed a great diminution in the verminous cases. The majority of the anemic cases had improved. Many children were wearing and deriving great benefit from the free spectacles; 20 had their tonsils and adenoids removed. Very few of the school buildings were altogether suitable or in good order. Most of the voluntary schools required repairs and new equipment. Seven schools were somewhat overcrowded; two had no playground; in ten the ventilation and lighting were inadequate; four were insufficiently heated; six had either insufficient or no cloakroom accommodation. One school had no water supply, while at fourteen others the water had to be carried from an inconvenient distance. Two schools had no closets, and at sixteen others the closets were unsuitable in type or in extremely bad repair. The interiors of many of the voluntary schools were depressing.

THE seven hundredth anniversary of the foundation of the University of Toulouse, the charter of which was granted on April 12, 1229, was celebrated, according to the London *Times*, on June 10 in the presence of President Doumergue and a gathering of ministers, state officials, senators and deputies, rectors and professors of other French universities, and delegates from many foreign universities. The president, who was received at the Hôtel de Ville, was the chief guest at the banquet given by the university at the Arsenal, and delivered an address in reply to the welcome of the rector, in which he referred to the great services rendered by the university in the past, especially in the teaching of law. The president subsequently attended a reception at the Chapelle des Jacobins, formerly the chapel of the university, described by M. Marraud, the Minister of Education, as perhaps one of the most beautiful of university monuments in France, and rare in that it had come down intact through the ages from the time of St. Louis. M. Charléty, the rector of the University of Paris, in welcoming the visitors from other universities, sketched the progress of the university through the ages, and M. Marraud afterwards described the newer activities of the various faculties in the fields of science, medicine and research. At an aerial display which formed part of the celebrations two aeroplanes came into collision in mid-air. The two pilots were killed.

DISCUSSION

FEDERAL AID FOR RURAL SCHOOLS

I HAVE introduced in the House of Representatives a bill on the subject of Federal Aid for Rural Elementary Schools, granting $100,000,000 per year in cooperation with the states on a 50–50 basis. The national government has granted federal aid to higher education for many years.

It is known that money is escaping from rural sections into more populous centers in a greater and greater degree. Chain stores are sending their profits out daily. Buying fencing and farm machinery at present prices with wheat, corn and oats, leaves the real profit deposited in the manufacturing centers.

This wealth is leaving the rural sections and in fact does not halt in very many of the states, but coagulates in a few large centers where it pays income tax to the national government and the only way to get any of it back is to send it back from the United States treasury.

The biggest product of the farm goes to the city for nothing. I refer to the boys and girls who graduate at a cost of $2,000 apiece for edu-

cation and $2,000 apiece for keep and the country loses them to the city, permanently, and the money they have cost never returns to the rural section. The U. S. Department of Agriculture advises me that 200 such children leave each county in Iowa annually for the city, a drain of $800,000 each year from each county.

Education in the country is more expensive than in the city. Consolidated schools make necessary more trucks than teachers.

Farmers are paying 50 cents out of every net dollar of profit on the farm for taxes and 53 per cent. of those taxes are for schools, and the price of land has broken down so that state tax commissioners are being forced to reduce valuations of land for taxation and this reduces school money.

If the farmer is to have equality of opportunity, he must first have equality of education and we have come to a place where this equality of education can not be maintained by the local rural units.

I shall be glad to receive comments.

CHAS. BRAND

HOUSE OF REPRESENTATIVES,
WASHINGTON, D. C.

IOWA ACADEMIC MEET

AN epoch-making event occurred in the State of Iowa during the present year in the holding of an academic meet among the high schools of the state under the auspices of the university. Contests were organized in the principal high-school subjects. Preliminary contests were held in each high school and the winners in these contests went into a district contest. The winners in the district contests came up to the university for a final contest on June 3 and 4, 1929.

On this occasion about 500 high-school students were present and took final objective examinations in all subjects for which they had entered, either as individuals or schools. Two classes of high schools were recognized in the school contests, namely, the large and the small.

The occasion was really a great event, dignified, serious and extremely interesting both to participants and onlookers. The success of the first year will insure a permanency of this contest as an annual affair. What the effect of having the idea of a contest in every subject running in the minds of the pupils throughout the year will be is hard to foretell, but it is certainly promising in that students take as much interest in this as they would in a football contest, and perhaps more pride.

The contest was organized by Professor Thomas J. Kirby, of the college of education, who had at his command an elaborate staff from the various departments of the university. All examinations were of the objective type. There was a splendid showing of cooperation all around. Delegations from towns in the state came in in busses and trains, and in many instances were received with the applause of their home town upon their return. Prizes in the way of cups, plaques and other souvenirs were awarded in the assembly held two hours after the completion of the examinations.

C. E. SEASHORE

THE STATE UNIVERSITY OF IOWA

A BOLSHEVIK IDEA

CHICAGO has advertised a principals' examination. Several hundred teachers who have attained the bachelor's degree are diligently cramming for the test. They spend all day Saturday and Sunday for weeks reviewing intensively and with paid instructors, to the detriment of their health and school work. There will be tremendous dissatisfaction with the results of written and oral tests. The board of education is exceedingly short of funds, but the whole thing will cost a few thousand dollars at the least. A very simple solution would be to raise requirements to a master's degree, with a definite number of years of actual classroom experience.

But another question raises itself. Why does well-nigh every Chicago teacher of better than mediocre ability feel that she is capable of being a principal? The real work in any classroom with forty or more pupils is teaching. It is hard work. Principals add to the burden instead of lightening it in many instances. Since the Chicago board of education is so short of funds an interesting experiment might be tried. Principals and administrative officers could be paid no more than teachers with the same qualifications. If there is a shortage of candidates for the coming examination under such a proposal it would be evidence that principals really earn the extra salary they receive.

Teaching is actually more important than administrative work. A foreman in industry is generally a superworkman. Many Chicago principals are not superteachers. Some of them never taught an elementary class in all their lives.

Perhaps you are inclined to argue that principals and other administrative officers will have no prestige or authority if they are not bolstered up with additional cash. Authority is a question of rules and legal enactment. Prestige is a matter of personal and mental superiority. Judges in court serve for lower salaries than the lawyers who argue cases to be decided, and if they do their work in accordance with justice their prestige and authority do not suffer.

Furthermore, if administrative and supervisional work were not given a bonus more women would attain positions of that sort, and good men teachers could remain in the classroom, where they are needed. Some of them are very poor principals, but additional salary has been the bait which has lured them from work for which they were well fitted. On the other hand, many women are good school heads.

HARVARD, NEBRASKA CAROLINE BENGTSON

QUOTATIONS

THE CHILD'S CHARTER OF HEALTH

MR. HOOVER'S name was a household word in many countries long before he became president. This was chiefly because of what he did to save children from starvation and disease during and following the war. But when his relief work abroad was over, his interest in childhood did not come to an end. He turned his attention to the health of children at home. Busy as he was with his manifold and diverse functions as Secretary of Commerce, he found time out of his love of children to organize and take an active part in the nation-wide work of the Child Health Association, of which he became president.

President Roosevelt called a national child conference at the White House twenty years ago, but it was solely in behalf of the dependent child and with a view to stressing the importance of the home, especially of finding homes for orphan children and keeping mother and child together when the father died or had been incapacitated. The scope of the conference toward which President Hoover is looking is far wider. It is concerned with the health of all children. Two years ago he put forth the following statement of his child health program which he said might be called a "Bill of Rights for Children":

> The ideal to which we should strive is that there shall be no child in America that has not been born under proper conditions, that does not live in hygienic surroundings, that ever suffers from undernutrition, that does not have prompt and efficient medical attention and inspection, that does not receive primary instruction in the elements of hygiene and good health; that there shall be no child that has not the complete birthright of a sound mind in a sound body and the encouragement to express in fullest measure the spirit within which is the final endowment of every human being.

He is now proposing such a coordination of official and voluntary effort as to insure the closest possible approach to that national ideal. There is not to be an increase of federal authority or machinery, but through the assembling under government auspices of those representative citizens and officials especially interested in "this most important subject," it may gain the attention it deserves—not only bringing into review what is being done but giving a view of what should be done for the more than 37,000,000 children—"the descent of many races, many social habits and racial customs"—whose health is the first national asset. As Mr. Hoover once said, "the race moves forward on the health of its children."

In his proclamation of Child Health Day (May 1, 1929), the first proclamation made by him after entering upon his duties as president of the United States, Mr. Hoover gave intimation of his first concern. And it is not too early to predict that whatever else he does he will be remembered above all for what he has done for the children of the world.—*The New York Times.*

RAISING CHILD LABOR STANDARDS

THERE is abundant justification for the statement made in the recent report of the National Child Labor Committee that it represents a

record of achievement. The report is a review of the work of the last quarter of a century, the committee having been organized in 1904. It is true that the goal set forth at that time has not yet been completely realized, but nevertheless the progress made refuses denial.

For instance, in 1904 only seventeen states were attempting to keep children under fourteen out of factories, while to-day there is not one of the forty-eight states which has not some kind of fourteen-year age limit legislation on its statute books, and in thirty-nine states no children under fourteen can work in factories under any circumstances. But this is in a sense just a promise of better things to come, for there are many associated factors to be considered and many aspects of the main question to be answered before the problem can be even approximately regarded as solved.

The issue of a federal amendment to the Constitution, it will be remembered, was unsuccessfully contested four years ago, so that for the present, at any rate, the question is still up to the individual states. And what do we find? That although the fourteen-year age limit is recognized in every state, some of the laws apply only during school hours, some do not include all occupations, and some carry poverty exemptions or certain other loopholes. On the other hand, the records of education, which constitute a fairly reliable index to the progress made, show that the average daily attendance at public schools has nearly doubled in the last quarter of a century, that the number of schoolhouses has increased by some 10,000, and that the high-school enrolment has grown from a little more than half a million to more than 3,500,000. All of this of itself is an accomplishment that merits the highest commendation.

The committee announces that it intends to continue the efforts to raise child labor standards in states where they are low, and its study of those types of industries and agriculture which still exploit small children, until some effective plan of control is found. Meanwhile its efforts are accomplishing much good. As a recent writer on the subject said: "While children are still selling newspapers in the streets, appearing in vaudeville shows and helping to make the latest thrills for the movies, the old sob story of youngsters sweltering in the blow rooms of the glass factories and spinning out their lives in the cotton mills no longer need be told." If this be the preface to the story, the main chapters will be awaited expectantly.—*The Christian Science Monitor.*

REPORTS

THE NEW CALIFORNIA JUNIOR COLLEGE LAW

AT the session of the California legislature, recently adjourned, a law was passed increasing very materially the requirements for the organization of district junior colleges.[1] This law was approved by the governor on May 23, 1929, and becomes effective on August 14, 1929. By its provisions a district junior college can not be organized unless the proposed district has an assessed valuation of at least $25,000,000 and has had an average daily attendance in its high schools during the previous year of at least one thousand students; if a "county" junior college, this limit is five hundred students. It can not continue its existence after the second year from its organization unless its average daily attendance exceeds two hundred students.

To understand fully the significance of these changes it is necessary to review briefly the junior college legislation in California and the development of the junior college under it. The first junior college law was passed in 1907, authorizing any high school to establish "postgraduate courses of study for the graduates of such high school, or other high schools, which courses of study should approximate the studies prescribed in the first two years of university courses." Under this law Fresno in 1910 was the first high school in the state to offer junior college work. No less than sixteen high schools were giving such courses when the law of 1907

[1] "An act relating to the support of junior colleges" (Senate Bill No. 599), introduced by Senator Merriam on January 17, 1929; amended in the Assembly on April 1, 1929, under the new title, "An act relating to the formation, suspension and support of junior college districts and the powers of governing boards thereof." Reamended on April 8, 1929.

was superseded by the law of 1917, which is still in existence. This new law restricted the establishment of junior college departments of high schools to districts having an assessed valuation of $3,000,000 or over, provided graduation and attendance requirements and authorized apportionment of state funds on the same basis as for high-school students, *viz.*, approximately $30 per student in average daily attendance. Under the previous law the junior college work had been done entirely at local district expense.

In the next four years eleven new junior college departments were organized under this law, but it proved too slender a basis in many cases for real junior college work. Consequently, in 1921 another junior college law was passed, supplementary to the law of 1917, but not superseding it. This provided for the organization of a junior college district independent of the high-school district, if it had an assessed valuation of $10,000,000 and an average daily attendance in the high schools of the district the previous year of four hundred. It required suspension of the junior college unless it maintained an average daily attendance exceeding seventy-five students each year after the second. To junior colleges, established under such provisions, the law furnished annual state aid of $2,000 per institution, and in addition $100 per student in average daily attendance, conditioned upon an amount at least as great being raised by the local district. Another law provided that this money should be furnished from sums received by the state from the federal government as proceeds from bonuses, royalties and rentals from the mining of coal, phosphate, oil, oil shale, gas and sodium on the public domain, in accordance with the act of Congress approved on February 20, 1920.

It has been under the stimulating encouragement of this law of 1921[2] that the most significant development of junior colleges in California has taken place. In the short period since 1921, nine of the old high-school departments have reorganized as junior college districts, and seven new institutions have organized without any previous high-school connections. To-day sixteen vigorous and flourishing district junior colleges are rendering noteworthy educational service to their communities, and several of them are known nationally.

Meanwhile many of the weak, struggling junior college departments of high schools have perished of malnutrition, or have been absorbed by other institutions or replaced by them. Thus, of forty-six departmental junior colleges which have come into existence since 1910 in California, only sixteen survive to-day in that form of organization.[3] Several of these have been planning to change to the district type in the near future, some through the annexation of adjacent territory necessary to meet the $10,000,000 requirement.

The vigorous development and stimulating leadership of the junior college movement in the state has come from the district institutions. It is significant that not a single one established on this basis has ever been discontinued. All have been growing rapidly. The number and enrolment of district junior colleges each year since 1921 have been as follows:[4]

Year	Number	Enrolment
1921–22	2	246
1922–23	7	1427
1923–24	7	2391
1924–25	8	3323
1925–26	8	3479
1926–27	10	5585
1927–28	13	7981
1928–29	16	–*

* Data not available for 1928–29. On October 1, 1928, enrolment was 8,394. If October and total enrolments have same ratio as previous year, total for year will be approximately 12,000.

The average enrolment for 1927–28 was 614 students. The average number of graduates was sixty. Sacramento Junior College enrolled 1,523 and Chaffey 1,185. The high-school junior college departments were much smaller and weaker, averaging only 120 students each and being correspondingly restricted in their curricula offerings. The district institutions owned property last year amounting to over

[2] Officially known as Act 1477, General Laws (Deering).

[3] Walter C. Eells, "History of the Public Junior College in California," *Sierra Educational News*, 25: 32–33, March, 1929.

[4] These and other numerical data in this article are taken from printed or mimeographed bulletins of California State Department of Education.

two and a half million dollars, averaging $175,000 each. Educational leaders in the state have felt that everything possible should be done to discourage the less efficient high-school departments, and to encourage the development of the district type of institution.

It is highly questionable whether the new legislation, just adopted, will have this result. By raising the standards, both as regards assessed valuation and attendance, to two and one half times their previous amounts, it becomes difficult if not impossible for many meritorious localities to organize such institutions. This is strikingly shown by the fact that if this law had been in existence previously, seven of the sixteen district junior colleges in the state could not have been organized. These seven have assessed valuations varying from thirteen to twenty-two million dollars, averaging nineteen million. Their names and enrolments last year were: Chaffey, 1,185 (second largest in the state); San Mateo, 829; Modesto, 826; Riverside, 330; Marin, 328; Santa Rosa, 260; Yuba County, 96.[5] The average enrolment of the six existing in 1927–28 was 626; average number of graduates, sixty-four. Both figures are larger than corresponding averages for all district junior colleges in the state! This is the type of vigorous, useful, community junior college which will be prevented from further organization under the provisions of the new law. It is slight compensation to know that the law does not apply to institutions now in existence.

Several junior college departments of high schools which have been planning reorganization on the district basis will find it impossible to do so unless they make the change before August 14. Another high-school department, although having an assessed valuation of over $65,000,000, has a high-school enrolment of less than 1,000 and so can not qualify under the terms of the new law. One isolated county in the extreme northern part of the state, 250 miles from another district junior college and over 300 miles from the state university, has an assessed valuation of $22,000,000. Some of its people are agitating a county junior college for its youth so far distant from higher educational advantages, but it will not be possible to organize it under the new law. The California requirements are already higher than anywhere else in the country. It seems, therefore, a sad blow at educational progress in the junior college field to have such a statute enacted. While it may be argued that it will force consolidation and stronger regional junior colleges, it seems more likely that it will force the organization of many more small, inefficient junior college departments of high schools, just the type that should be discouraged. Time will tell which tendency will predominate.

The explanation of this new legislation is to be found in terms of financial shortsightedness and expediency, not of educational vision and statesmanship. The measure was not initiated by educators or by the state department of education, but by the state department of finance. As already explained, the state support of junior colleges comes from federal funds. Up to 1927–28 these were more than sufficient each year to meet the demands of the junior colleges upon them, but, with the increase in attendance last year, the annual federal fund was insufficient and only $96 was actually received from it by the junior colleges for each student in average daily attendance, instead of the $100 provided by law. To prevent the recurrence of this situation, a law was introduced in the present legislature providing that the necessary difference between money from federal sources and $100 per student should hereafter be made up from the state treasury, up to a maximum of $30. This was an excellent measure and had the support of educational forces.

Late in the session, however, the new provisions changing the standards and requirements for organization of junior college districts, sponsored by the state department of finance, were added to this bill as amendments, and the entire bill was rushed through in the jam of final legislation before adjournment of the legislature.[6] It is doubtful whether many of the educators of the state knew what was happening or appreciated its significance. In view of these facts another change in requirements is highly significant. The old law provided for an election to determine the organiza-

[5] Newly organized, enrolment on October 1, 1928 (practically all freshmen), was ninety-six.

[6] The "amended" bill was more than six times the length of the original bill.

tion of a junior college district only after a petition for it signed by 500 voters had been approved *by the state board of education.* The new law slips in the very significant provision that this petition must have the approval of the state board of education *and of the state department of finance!* It is not difficult to see the dangerous possibilities inherent in this little additional phrase if administered by an unsympathetic or hostile department of finance (practically, one man), intent only on saving money for the state treasury. It would be perfectly easy to throttle the organization of any more district junior colleges, regardless of local need or demand for them.

Another provision of the new law permits county or joint county junior college districts to construct and maintain dormitories, if in the judgment of their boards this is necessary. These, however, would have to be built by local funds, with no assistance from the state treasury.[7]

Does this new legislation indicate advance or retrogression in the junior college field?

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EDUCATIONAL RESEARCH AND STATISTICS

A COMPARISON OF NORMAL-SCHOOL STUDENTS WITH CERTAIN OTHER GROUPS

THE study here reported represents an attempt to investigate the intellectual, scholastic, socio-economic and cultural level which the normal-school students (prospective elementary-school teachers) in a particular institution occupy when compared with certain other groups of students. These normal-school students are compared with college students taking degree courses in teacher training (prospective high-school teachers) as to: (1) intelligence, (2) scholarship, (3) socio-economic status, (4) education of parents, (5) size of high school attended; and they are compared with a group of high-school students, with average ninth-grade students and with average adults as to the mastery of elementary subject-matter.

In the fall of 1927, sixty-seven women enrolled in the two-year normal course at the Louisiana Polytechnic Institute, and ninety-one women enrolled in the different four-year college courses planned for prospective high-school teachers. At entrance these two groups, which are hereafter known as normal freshmen and college freshmen, respectively, were given the Carnegie Tests for General Mental Ability, the Cross English Test, Form A., the Thorndike Test of Word Knowledge, Form B. and a modified form of the Sims Score Card for Socio-Economic Status.[1]

Table I gives for each of the tests mentioned above the median score made by the two groups, the per cent. of the normal freshmen that reached or exceeded the median of the college freshmen and the per cent. of the normal freshmen that reached or exceeded the 75 percentile of the college freshmen. In interpreting these tables one should remember that if the two groups were equivalent 50 per cent. of the normal freshmen would have reached or exceeded the median of the college freshmen and 25 per

TABLE I

SUMMARY OF SCORES MADE BY NORMAL AND COLLEGE FRESHMEN ON CERTAIN TESTS

Test	Median score, normal freshmen	Median score, college freshmen	Per cent. of normal freshmen reaching or exceeding median college freshmen	Per cent. of normal freshmen reaching or exceeding 75 percentile of college freshmen
Carnegie Test	80.8	105.0	20	6
Cross English Test	103.8	113.0	31	11
Thorndike Vocab.	57.1	63.3	26	9
Sims Score Card (Modified form)	16.4	20.4	26	12

[7] In addition, the legislature passed a half dozen other bills affecting the junior colleges of the state, but none of them approached in importance the provisions of the one discussed in detail above. They deal with modified admission conditions, uniform cost accounting, annexation of contiguous high-school districts, payment of cost of education by non-resident students and appointment of temporary boards in new districts.

[1] Norms for the form are not comparable with the published norms for the Sims Score Card.

cent. would have reached or exceeded the 75 percentile. There are, then, decided differences between the two groups on each of the tests.

In addition to taking these tests, all entering students were asked to furnish information as to the education of their parents, the size of the class in which they graduated from high school and their estimated rank (in terms of fourths) as students in high school. Table II presents a comparison of the education of the parents of the normal freshmen and the college freshmen, and Table III presents data on the high-school careers of the two groups. These data may not be very reliable, but there are surely no selective factors that would make one group overestimate or underestimate true conditions more than the other group; consequently they may be trusted for comparative purposes. Here, again, the normal freshmen are inferior to the college freshmen on each of the items.

TABLE II

COMPARING EDUCATION OF PARENTS OF NORMAL FRESHMEN WITH COLLEGE FRESHMEN

Education of parents	Normal freshmen	College freshmen
Per cent. having one parent or more who attended school above high school	10	40
Per cent. having one parent or more who attended school above elementary school	56	98
Per cent. having one parent or more who attended school	96	100

The difference between the high-school scholarship of the two groups is not shown to be as significant as it really is because a much larger per cent. of the college freshmen graduated from larger high schools, where standards were higher. That this is true is shown if we consider only those students who graduated in a class of twenty-one or more. Fifty-one of the college freshmen graduated in a class of twenty-one or more, and twenty-seven (or 53 per cent. as compared with 54 per cent. of the total) of these students ranked in the upper fourth of the class, while twenty-six of the normal freshmen graduated in a class of twenty-one or more, and only seven (or 27 per cent. as compared with 42 per cent. of the total) of these students ranked in the upper fourth of the class.

TABLE III

COMPARING THE HIGH-SCHOOL CAREERS OF NORMAL AND COLLEGE FRESHMEN

	Normal freshmen	College freshmen
Size of high school attended:		
Median size class	15	23
Per cent. graduating in a class of ten or less	33	8
Per cent. graduating in a class of 40 or more	8	32
Rank as a student in high school:		
Per cent. ranking in upper fourth	42	54
Per cent. ranking in second fourth	32	28
Per cent. ranking in third fourth	22	15
Per cent. ranking in lower fourth	4	3

The curriculum and teaching staff for these two groups of students were different except for two subjects, English and biology. The same English course was required for both groups, and a biology course which was required for normal freshmen was also required in the courses which fifty-nine of the college freshmen were taking. Grades made in subjects other than these are not comparable because of the differences in the standards of the classes, but in these two subjects, where the students were assigned to sections at random, the grades made by the two groups should be something of an index of the relative ability to handle the subject-matter of the college.

Table IV summarizes the results of the first quarter's grades made in these subjects by the two groups. A five-point (A, B, C, D, F) grading system, with three quality points for an A, two for a B and one for a C, is used. The evidence presented in this table indicates that the normal students were not very successful in their competition with the college students in either subject.

After these normal freshmen had been in school for a quarter, at the beginning of the winter term, those that remained, sixty-three in

number, were given the Stanford Achievement Test, Advanced Examination, Form A, and at the same time this test was given to all the students in the high-school department (grades 8 to 11) of the demonstration school attached to the institution. Table V gives a summary of the results of this test for each group, and with these results the norms which the authors of the S. A. T. give for the average adult and for the average ninth-grade student. It will be seen that these normal freshmen are slightly inferior to the high-school population and to the adult

TABLE IV

SHOWING GRADES MADE BY NORMAL AND COLLEGE FRESHMEN IN SUBJECTS TAKEN TOGETHER

Subject	Normal freshmen	College freshmen
English:		
Average quality points earned	0.50	0.86
Per cent. making A or B	6.0	19.0
Per cent. failing	28.0	18.0
Biology:		
Average quality points earned	0.78	1.46
Per cent. making A or B	11.0	23.0
Per cent. failing	22.0	13.0

norms, and are slightly superior to the norms for the ninth grade. Perhaps we should call attention to the fact that these results in no way indicate that these normal students are inferior to average high-school students of this state, since the demonstration school represents a highly selected group, and the norms for the Stanford Achievement Test are usually found to be high for the average southern school.

In conclusion, the normal students are inferior to the college students enrolled in courses planned for high-school teachers in intelligence, in vocabulary, in socio-economic status and in English ability. They have parents with less education, graduate from smaller high schools and make lower grades in both high school and in college than college students within the same institution. In the mastery of elementary subject-matter they are inferior to the high-school students used in the study and to the average

TABLE V

COMPARING THE ACHIEVEMENT OF THE NORMAL FRESHMEN WITH CERTAIN OTHER GROUPS

Stanford achievement test scores	Average score—normal freshmen	Average score—demonstration high school	Adult norms	Ninth-grade norms
Reading	214	211	211	200
Arithmetic	220	224	242	234
Nature study and science	69	71	72	67
History and literature	47	62	63	59
Language usage	42	43	40	37
Dictation (spelling)	181	168	172	163
Total achievement score	77	79	80	76

adult, and are but slightly superior to the ninth-grade norms.

Whether or not this is a matter for concern depends upon the demands made of the elementary-school teacher. A few students have suggested that perhaps teaching the elementary grades does not call for a high order of intelligence, but to date no one has suggested that persons who come from homes of mediocre standards, who attend small high schools of poor standing and who are poorly grounded in elementary subject-matter are capable of handling our education at this most critical period. In the opinion of the writer the inferiority of these normal-school students is striking enough to cause concern in this particular community as to the caliber of elementary teachers which they are securing. If it be true that similar conditions exist throughout the south the educational problems of the south can not be solved by improved overhead structure, by better organization or by rules and regulations. They can be solved only by making the profession attractive enough to draw a higher type of individual into the normal schools for training. Normal-school instructors, working with such raw material, will do well to give students a fair mastery of elementary subject-matter plus a few "rule-of-thumb" methods, but the ultimate solution lies in attracting a higher level of student body.

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